

BARRIER FOR INTERCONNECT AND METHOD

Abstract

A method of creating a multi-layered barrier for use in an interconnect, a barrier for an interconnect, and an interconnect including the barrier are disclosed. The method includes creating the multi-layered barrier in a recess of the device terminal by use of a single electroplating chemistry to enhance protection against voiding and de-lamination due to the diffusion of copper, whether by self-diffusion or electro-migration. The barrier includes at least a first layer of nickel-rich material and a second layer of copper-rich material. The barrier enables use of higher current densities for advanced complementary metal-oxide semiconductors (CMOS) designs, and extends the reliability of current CMOS designs regardless of solder selection. Moreover, this technology is easily adapted to current methods of fabricating electroplated interconnects such as C4s.